

# F. Maxwell Harper

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## Education

### **University of Minnesota, Minneapolis, MN (2003 - 2009)**

Ph.D., Computer Science  
Advised by Dr. Joseph A. Konstan

### **University of Minnesota, Minneapolis, MN (2003 - 2006)**

M.S., Computer Science

### **Carleton College, Northfield, MN (1994 - 1998)**

B.A., International Relations and Environmental Studies  
*Magna Cum Laude*

## Professional and Research Experience

### **University of Minnesota, Minneapolis, MN (2012 - present)**

Research Scientist

Leads research projects at the GroupLens Center for Social and Human-Centered Computing in the areas of recommender systems and social computing. Mentors graduate and undergraduate students in research and software development.

### **Code 42 Software, Minneapolis, MN (2011 - 2012)**

Software Developer

Built server-side software for CrashPlan, a product with hundreds of thousands of users and many dozens of petabytes of backup data. Contributed to many efforts, with a focus on scalability and automated test coverage.

### **Theophilus, Inc., New York, NY (50% time, 2009 - 2010)**

Consulting Data Scientist

Built a recommendation engine for an online restaurant deal discovery application. Prototyped and evaluated experimental technologies for automated summarization and recommendation.

### **Blue Shift Software Laboratory, Minneapolis, MN (2009 - 2011)**

Founder, Lead Engineer

Founded a startup business with the broad goal of providing software that supports data-driven decision-making through the synthesis and visualization of existing knowledge. Launched thinkmeter.com and eventburn.com, both hosted on Google App Engine.

### **University of Minnesota, MN (20% - 50% time, 2009 - 2010)**

Post-Doctoral Associate

Coordinated research efforts between the GroupLens research group and scholars from the Department of Writing Studies. Developed machine learning techniques that can infer the intent of users of social software. Contributed to an NSF grant to extend the group's work on question and answer Web sites. Mentored graduate students.

### **University of Minnesota, MN (2004 - 2009)**

Research Assistant

Led and participated in several research teams, with the overarching goal of learning and publishing about user behavior in online systems. Collaborated with computer scientists, economists, psychologists, rhetoricians, and MIS scholars. Conducted laboratory and field studies, collected and analyzed massive data sets, and developed novel algorithms. Helped author several funded NSF grants.

**Nokia Research Center, Palo Alto, CA** (Summer 2007)

Research Intern

Built the software to drive a network of interactive touchscreen computers that recognize nearby users using Bluetooth signal processing. Investigated the impact on interpersonal relationships through observational analysis, surveys, and data mining.

**Walker Art Center, Minneapolis, MN** (20% time, 2001 - 2003)

Consultant

Administered approximately 30 new media web sites hosted on Linux and BSD servers. Maintained and developed code for dynamic content display. Consulted on network security, data backup, and performance issues.

**National Civic League, Denver, CO** (2001 - 2003)

Web Manager

Served non-profit organization in the roles of technology consultant, network administrator, server administrator, Web site maintainer, and e-commerce manager. Fulfilled technology requirements for community services projects.

**OneSecure, Inc., Denver, CO** (2000 - 2001)

Software Engineer

Designed and built web-based applications to provide operational support and managed security services. Helped to build and maintain a Java object persistence framework. Served as project manager and lead developer for an application to assess a customer's security needs and automatically generate firewall policies.

**AT&T Wireless Services, Redmond, WA** (1999 - 2000)

Software Developer

Expanded the capabilities of the AT&T Wireless data warehousing system. Contributed to system scripts and SQL query optimization. Served as lead developer on a project to reformat mainframe data for nightly import into the data warehouse.

**Fair Isaac Corporation, St. Paul, MN** (1998 - 1999)

Programmer

Developed data formatting and data mining programs on an IBM mainframe in support of credit scoring. Worked with the marketing department at Chase Manhattan Bank to develop business requirements and program specifications.

**Peer-Reviewed Publications**

Kang, J., Condiff, K., Chang, S., Konstan, J.A., Terveen, L., **Harper, F.M.** Understanding How People Use Natural Language to Ask for Recommendations. Proceedings of the Eleventh ACM Conference on Recommender Systems, 2017.

**Harper, F.M.** Recommender Popularity Controls: An Observational Study. Poster Proceeding of ACM Recsys 2017.

Nguyen, T.T., **Harper, F.M.**, Terveen, L., Konstan, J.A. User Personality and User Satisfaction with Recommender Systems. Information Systems Frontiers. (Sep. 2017), 2017.

Sharma, M., **Harper, F.M.**, Karypis, G. Learning from Sets of Items in Recommender Systems. eKNOW 2017: The Ninth International Conference on Information, Process, and Knowledge Management, 2017. Best Paper Award.

Zhao, Q., Adomavicius, G., **Harper, F.M.**, Willemsen, M., Konstan, J.A. Toward Better Interactions in Recommender Systems: Cycling and Serpentine Approaches for Top-N Item Lists. Proceedings of the 2017 ACM Conference on Computer Supported Cooperative Work and Social Computing, 2017.

Zhao, Q., Chang, S., **Harper, F.M.**, Konstan, J.A. Gaze Prediction for Recommender Systems. Proceedings of the 10th ACM Conference on Recommender Systems, 2016.

Zhao, Q., Huang, Z., **Harper, F.M.**, Terveen, L. and Konstan, J.A. Precision Crowdsourcing: Closing

the Loop to Turn Information Consumers into Information Contributors. Proceedings of the 19th ACM Conference on Computer-Supported Cooperative Work & Social Computing, 2016.

**Harper, F.M.**, Konstan, J.A. The MovieLens Datasets: History and Context. ACM Transactions on Interactive and Intelligent Systems, 5 (4), 2015.

Chang, S., **Harper, F.M.**, He, L., Terveen, L.G. CrowdLens: Experimenting with Crowd-Powered Recommendation and Explanation. Tenth International AAAI Conference on Web and Social Media, 2016.

Chang, S., **Harper, F.M.**, Terveen, L.G. 2016. Crowd-Based Personalized Natural Language Explanations for Recommendations. Proceedings of the 10th ACM Conference on Recommender Systems, 2016.

**Harper, F.**, Xu, F., Kaur, H., Condiff, K., Chang, S., Terveen, T. Putting Users in Control of Their Recommendations. RecSys '15: Proceedings of the 9th ACM Conference on Recommender Systems, 2015.

Ekstrand, M., Kluver, D., **Harper, F.**, Konstan, J. Letting Users Choose Recommender Algorithms: An Experimental Study. RecSys '15: Proceedings of the 9th ACM Conference on Recommender Systems, 2015.

Chang, S., **Harper, F.**, Terveen, L. Using Groups of Items for Preference Elicitation in Recommender Systems. CSCW '15: Proceedings of the 18th ACM Conference on Computer Supported Cooperative Work and Social Computing, 2015.

Wang, T., **Harper, F.**, Hecht, B. Designing Better Location Fields in User Profiles. Group '14: Proceedings of the 18th International Conference on Supporting Group Work, 2014.

Nguyen, T., Hui, P., **Harper, F.**, Terveen, L., Konstan, J. Exploring the Filter Bubble: The Effect of Using Recommender Systems on Content Diversity. WWW '14: Proceedings of the 23rd International Conference on World Wide Web, 2014.

Ekstrand, M., **Harper, F.**, Willemsen, M., Konstan, J. User Perception of Differences in Recommender Algorithms. RecSys '14: Proceedings of the 8th ACM Conference on Recommender Systems, 2014.

Ren, Y., **Harper, F.**, Drenner, S., Terveen, L., Kiesler, S., Riedl, J., Kraut, R. Building Member Attachment in Online Communities: Applying Theories of Group Identity and Interpersonal Bonds. MIS Quarterly, 36 (3), 2012.

Pal, A., **Harper, F.**, Konstan, J. Exploring Question Selection Bias to Identify Experts and Potential Experts in Community Question Answering. ACM Transactions on Information Systems (TOIS), 30 (2), 2012.

Dong, X., **Harper, F.**, Konstan, J. Entity-Linking Interfaces in User-Contributed Content: Preference and Performance. CHI '11: SIGCHI Conference on Human Factors in Computing Systems, 2011.

Logie, J., Weinberg, J., **Harper, F.**, Konstan, J. Asked and Answered: On Qualities and Quantities of Answers in Online Q&A Sites. Fifth International AAAI Conference on Weblogs and Social Media, 2011.

Chen, Y., **Harper, F.**, Konstan, J., Li, X. Social Comparisons and Contributions to Online Communities: A Field Experiment on MovieLens. American Economic Review, 100 (4), 2010.

**Harper, F.**, Weinberg, J., Logie, J., Konstan, J. Question Types in Social Q&A Sites. First Monday, 15 (7), 2010.

**Harper, F.** The Impact of Social Design on User Contributions to Online Communities. Ph.D. Thesis, University of Minnesota, 2009.

**Harper, F.**, Moy, D., Konstan, J. Facts or Friends? Distinguishing Informational and Conversational Questions in Social Q&A Sites. CHI '09: SIGCHI Conference on Human Factors in Computing Systems. CHI 2009 Honorable Mention Paper.

McCarthy, J., Congleton, B., **Harper, F.** Public Displays for Sharing Online Media in a Physical Workspace. CSCW '08: ACM Conference on Computer Supported Cooperative Work, 2008. Best Paper Nominee.

**Harper, F.**, Raban, D., Rafaeli, S., Konstan, J. Predictors of Answer Quality in Online Q&A Sites. CHI '08: SIGCHI Conference on Human Factors in Computing Systems, 2008.

Sen, S., **Harper, F.**, LaPitz, A., Riedl, J. The Quest for Quality Tags. GROUP '07: ACM 2007 International ACM Conference on Supporting Group Work, 2007.

Frankowski, D., Lam, S., Sen, S., **Harper, F.**, Yilek, S., Cassano, M., Riedl, J. Recommenders Everywhere: The WikiLens Community-Maintained Recommender System. ISW '07: International Symposium on Wikis, 2007.

**Harper, F.**, Sen, S., Frankowski, D. Supporting Social Recommendations with Activity-Balanced Clustering. Recsys '07: ACM Conference on Recommender Systems, 2007. Short paper.

**Harper, F.** Encouraging Contributions to Online Communities with Personalization and Incentives. UM '07: The 11th International Conference on User Modeling, 2007. Doctoral consortium paper.

**Harper, F.**, Li, X., Chen, Y., Konstan, J. Social Comparisons to Motivate Contributions to an Online Community. Persuasive '07: The Second International Conference on Persuasive Technology, 2007.

**Harper, F.**, Frankowski, D., Drenner, S., Ren, Y., Kiesler, S., Terveen, L., Kraut, R., Riedl, J. Talk Amongst Yourselves: Inviting Users To Participate In Online Conversations. IUI '07: The 12th International Conference on Intelligent User Interfaces, 2007.

Sen, S., Lam, S., Cosley, D., Rashid, A., Frankowski, D., Osterhouse, J., **Harper, F.**, Riedl, J. tagging, community, vocabulary, evolution. CSCW '06: ACM Conference on Computer Supported Cooperative Work, 2006. Best Paper Award.

Drenner, S., **Harper, F.**, Frankowski, D., Riedl, J., Terveen, L. Insert Movie Reference Here: A System to Bridge Conversation and Item-Oriented Web Sites. CHI '06: SIGCHI Conference on Human Factors in Computing Systems, 2006. Short paper.

**Harper, F.**, Li, X., Chen, Y., Konstan, J. An Economic Model of User Rating in an Online Recommender System. In UM '05: The 10th International Conference on User Modeling, 2005.

## Other Publications

Congleton, B., **Harper, F.**, McCarthy, J. Linking Mobile Phones and Public Displays for Sharing Online Media in the Physical Workplace. In CHI'08 Workshop: Designing and Evaluating Mobile Phone-Based Interaction with Public Displays, at CHI '08: SIGCHI Conference on Human Factors in Computing Systems, 2008.

Raban, D., **Harper, F.** Motivations for Answering Questions Online. In Azran, T., Caspi, D. (Eds.) New Media and Innovative Technologies, 2008.

**Harper, F.**, Konstan, J., Li, X., Chen, Y. User Motivations and Incentive Structures in an Online Recommender System. In Workshop on Sustaining Community: The role and design of incentive mechanisms in online systems, at GROUP '05: ACM 2005 International Conference on Supporting Group Work, 2005.

**Harper, F.**, Data Warehousing and the Organization of Governmental Databases. In Digital Government: Principles and Best Practices, Pavlichev, A. and Garson, G., Eds. Idea Group Publishing, Hershey, PA, 2004, pp. 236-247.

## Research Grants

HCC-Small: Understanding and Supporting Online Question-Answering Sites (co-author), National Science Foundation, \$445,519 for the period July, 2008 to July, 2011.

SBIR Phase I: Blue Shift Communities – Improving Online Technical Support (PI). National Science Foundation, \$150,000 for the period January, 2010 to July, 2010.

## Professional Activities

### Program Committee Member (2006 - present)

- ACM Transactions on Intelligent Interactive Systems (TIIS) Board of Distinguished Reviewers: 2017-present
- ACM Conference on Recommender Systems (RecSys): 2008-present
- The Web Conference (WWW) workshop on “Online Recommender Systems and User Modeling”: 2018
- The Web Conference (WWW): 2011
- ACM Conference on Recommender Systems (RecSys) workshop on “Recommenders and the Social Web”: 2009, 2010
- International Conference on Adaptive Hypermedia (AH) workshop on “Adaptation in the Social Web”: 2008
- International Conference on Human-Computer Interaction (INTERACT) workshop on “Design Principles for Software that Engages Users”: 2007
- International Conference on User Modeling (UM) workshop on “Adaptation and Personalization in Social Systems: Groups, Teams, Communities”: 2007
- International Conference on Adaptive Hypermedia (AH) workshop on “Social Navigation and Community Based Adaptation Technologies”: 2006

### NSF Panelist (2017.)

- Information & Intelligent Systems: 2017

### Reviewer (2006 - present)

- SIGCHI Conference on Human Factors in Computing Systems (CHI): 2006-present
- ACM Conference on Computer Supported Cooperative Work (CSCW): 2006-present
- ACM Conference on Recommender Systems (RecSys): 2008-present
- ACM Transactions on the Web (TWEB): 2008, 2010, 2017
- ACM Transactions on Intelligent Systems and Technology (TIST): 2017
- Online Information Review (OIR): 2017
- International World Wide Web Conference (WWW): 2011
- ACM Conference on Recommender Systems (RecSys) workshop on “Recommenders and the Social Web”: 2009, 2010
- International Conference on Computational Linguistics (COLING): 2010
- ACM Special Interest Group on Information Retrieval (SIGIR): 2010
- Journal of Computer-Mediated Communication (JCMC): 2010
- International Conference on Communities and Technologies (C&T): 2009
- ACM Conference on Hypertext and Hypermedia (Hypertext): 2007
- International Conference on Mobile and Ubiquitous Systems (Mobiquitous): 2007
- Electronic Commerce Research (ECR): 2007
- International Conference on Intelligent User Interfaces (IUI): 2007
- International Conference on Adaptive Hypermedia (AH): 2006

### Student Volunteer (2004, 2007-2008)

- SIGCHI Conference on Human Factors in Computing Systems (CHI) 2008
- International Conference on User Modeling (UM) 2007
- Usability Professionals’ Association (UPA) 2004

## Teaching Experience

### Department of Computer Science, University of Minnesota, MN (2007 - present)

Instructor

- CSCI 5117, Fall 2016, 2017. Developing the Interactive Web  
Graduate-level course on modern web development topics including node.js and react. Original curriculum, 40-50 students, 1-2 teaching assistants.
- CSCI 5991, Spring 2018. Data Science Methods for Social Computing  
Graduate-level seminar for researchers in social computing on data wrangling, visualization, and modeling. 10 students.
- CSCI 4061, Spring 2007. Introduction to Operating Systems  
Junior- and senior-level course on operating systems concepts and UNIX systems programming in C. Revised existing curriculum, 107 students, 3 teaching assistants.

### Department of Computer Science, University of Minnesota, MN (2005.)

Teaching Assistant

- CSCI 1902, Fall 2005. Structure of Computer Programming 2  
Planned and led three lab sections per week, 30 students per lab. Wrote and graded examinations and Java programming assignments. Lectured in absence of Professor. Held office hours.
- CSCI 1001, Spring 2005. An Overview of Computer Science  
Planned and led two lab sections per week, 10 students per lab. Wrote and graded Python programming assignments, written assignments, and tests. Held office hours.

### Department of Software Engineering, University of Minnesota, MN (2003 - 2004)

Teaching Assistant

- SENG 5801, Fall 2003 and Fall 2004. Software Engineering 1  
Graded written assignments and programming assignments in VDM-SL (2003) or Z (2004). Held office hours.
- SENG 5115, Spring 2004. GUI Design and Evaluation  
Graded written assignments and user interface design assignments. Held office hours.

## Departmental Service

### GroupLens Research, University of Minnesota, MN (2006.)

Organizer, CommunityLab Seminar

Organized and managed the CommunityLab Seminar, a multi-site research discussion group.

### Department of Computer Science, University of Minnesota, MN (2005 - 2006)

Secretary, Computer Science Graduate Student Association

Met with faculty members to manage student concerns, organized a poster conference, and wrote a proposed budget for student association.

### Department of Computer Science, University of Minnesota, MN (2004 - 2005)

Student Representative, Curriculum Committee

Surveyed graduate students about graduate curriculum, met with faculty committee to evaluate proposed new courses and revise student handbook.

## Other Facts

Personal interests include squash (the sport), pizza-making, and modern art.

Served as the lead actor in a participatory theater experience to train 400 incoming TAs at the University of Minnesota (2008).

Four year All-America and Academic All-America swimmer at Carleton College. Also served as the team captain.